

Technical Manual for

Space

Fortress

INTRODUCTION TO SPACE FORTRESS

INTRODUCTION

Space Fortress is a one or two player outer space action game designed with features geared for maximum player appeal: a progressively difficult competitive level and a clearly defined "enemy" which must be both attacked and avoided at various points in the course of play.

GAME PLAY

The center of the playfield is occupied by the "Space Fortress" which is programmed to constantly home in on the players' ships. Surrounding the "Space Fortress" are three concentric "energy rings" of twelve segments each which serve as both a protective perimeter for the "Space Fortress" and a source of points for the player. Contained within the "energy rings" are three protective "mines" which seek out the players' ships and destroy them upon collision. The movements of the "mines" are programmed to simulate the actions of heat-seeking missiles.

The object of the games of "Space Fortress" is to score the maximum number of points possible. This is accomplished by the combination of three elements: a) exploding the ring segments; b) exploding the "Space Fortress"; c) avoiding the Space Fortress mines. A player's turn is over when his ship has been destroyed. The number of ships per game is set by the operator.

Points are awarded as follows:

A. Hitting ring segments

1. outer ring-10 points per segment
2. center ring-20 points per segment
3. inner ring- 30 points per segment
(note: it takes two "hits" to destroy a segment)

B. Hitting "Space Fortress"

1. 1,440 points plus extra ship for each hit.

C. Avoiding "mines"

1. No points are awarded for shooting the "mines", but they must be avoided or shot to keep the game going.

For maximum scoring, a player will want to shoot out sections of the energy rings in order to give him a shot at the Space Fortress in the center of the screen. As play progresses, there are two facts a player must keep in mind: 1) exploding all segments in a given ring will cause the entire ring to reappear - thereby eliminating a potential shot at the Space Fortress in the center; and 2) exploding the rings in a manner that gives you a shot at the Space Fortress will also give the Space Fortress a shot at you. The Space Fortress is programmed so that its nose always seeks out the player's ship. If there is a shot at the player, he will take it.

When the Space Fortress is hit by a player's missile, it will first implode and then explode with all remaining ring segments.

After a one-second delay, the Space Fortress will reappear with all three ring segments. If the Space Fortress shoots the player, his turn is over.

MODES OF PLAY

There are two modes of play in Space Fortress: a) The one player mode; and b) the two player mode.

The one player mode is activated when a coin is accepted and the player pushes the one player button. As play begins, the Space Fortress will appear in the center of the screen surrounded by its three "energy rings". The player's ship appears about halfway up on the right hand edge.

By using the control buttons to move forward, right or left, the player maneuvers about the screen using the firing button to launch missiles.

Points are scored by destroying the energy ring segments or the Space Fortress itself. Exploding the Space Fortress gives an extra ship as well as points. No points are given for the "mines" that attack the player.

The player's ship can be destroyed in two ways: by collision with the mines or by a hit from the Space Fortress's torpedo. The mines are launched from the rings and attack the player for approximately ten seconds or until shot. The Space Fortress's torpedos are launched only when there is a clear shot at the player through all three rings. At this time the player also has his shot at the Space Fortress. Both the Space Fortress and the mines get smarter and faster as the game progresses.

The two player mode is activated when the coins are accepted and the two player button is pushed. Each player plays his turn until his ship is exploded. If a player scores more extra ships than his opponent, he will be allowed to play the extra ships even though his opponent's game is over.

The game of SPACE FORTRESS is not based on time units. The battle rages on until all the player's ships are destroyed. The length of the game depends solely on the skill of the player. It's the age-old challenge of man versus machine.

RECEIVING AND INSTALLATING SPACE FORTRESS

RECEIVING INSPECTION

Your game was shipped in ready-to-play condition. However, after removal of the shipping carton, a brief visual examination is suggested.

Naturally, you'll want to make note of any physical damage to the game cabinet and its external components for freight claim purposes. Considering the quality of the shipping carton, any damage to the exterior would indicate possible interior damage as well.

The interior of the game should also undergo a brief examination for: loose mounting hardware (check to be sure that the major components are still securely mounted); disconnected or loose wires, cables or harnesses; electronic devices loose in their sockets; ect.

At this time the game serial number should be logged. Please remember that the game serial number will be required if you need service from your distributor.

ELECTRICAL REQUIREMENTS

Unless specified otherwise, your game was shipped to operate at 220 VAC. Four other voltage settings are possible. The power supply chassis has a table which shows the voltage options and fusing requirements.

A good earth ground is essential for the proper operation of this game or for that matter any electronic device. Problems with instability and erratic operation of computertype devices can usually be traced to an ineffective ground system. Therefore, plug the game into a properly wired 3 prong outlet. If a 3 prong to 2 prong AC adaptor must be used, an alternate method of grounding the third prong must be used.

INITIAL ADJUSTMENTS

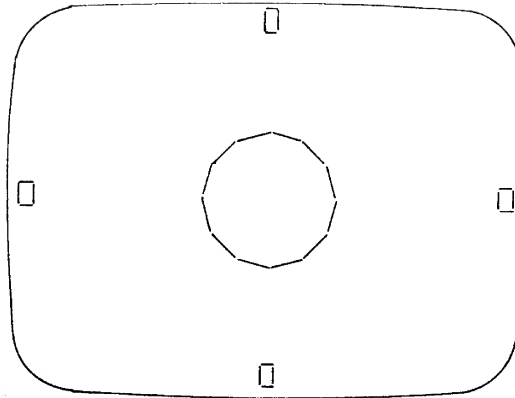
NOTE

When the game is connected to AC power, one of the game sounds may be heard. This is normal.

The audio level (volume) can be easily adjusted and THIS IS ACHIEVED BY ROTATION OF THE VOLUME POT. The audio level should compete with other machines "on the floor" to maximize play time.

Display brightness is another easy adjustment. The monitor assembly has several adjustments, but the brightness control is the only one which does not require a "screwdriver" for rotation. Keep the brightness at the correct level for appeal.

TEST
PATTERN



SPACE FORTRESS OPTION SWITCHES
(Located on logic board)

| OFF | ON |
|--------------------------|----|
| <input type="checkbox"/> | 1 |
| <input type="checkbox"/> | 2 |
| <input type="checkbox"/> | 3 |
| <input type="checkbox"/> | 4 |
| <input type="checkbox"/> | 5 |
| <input type="checkbox"/> | 6 |
| <input type="checkbox"/> | 7 |

- 1] SHIPS PER GAME
- 2] SEE TABLE 2-1
- 3] CREDITS PER COIN
- 4] SEE TABLE 2-2
- 5] NOT USED
- 6] NOT USED
- 7] ON=NORMAL OPERATION
OFF= TEST PATTERN

| SWITCH 2 | SWITCH 1 | SHIPS / GAME |
|----------|----------|-----------------|
| ON | ON | 6 |
| OFF | ON | 5 |
| ON | OFF | 4 |
| OFF | OFF | 3 |

To adjust coin receptor, operate on the board (coin switches adjustment), moving switches n°3 and n°4 of game board, in "ON" position.
Adjust, as wished, switches on table 2-2

TABLE 2-1

TABLE 2-2
COIN SWITCH ADJUSTMENT

COIN MECHANISM 1

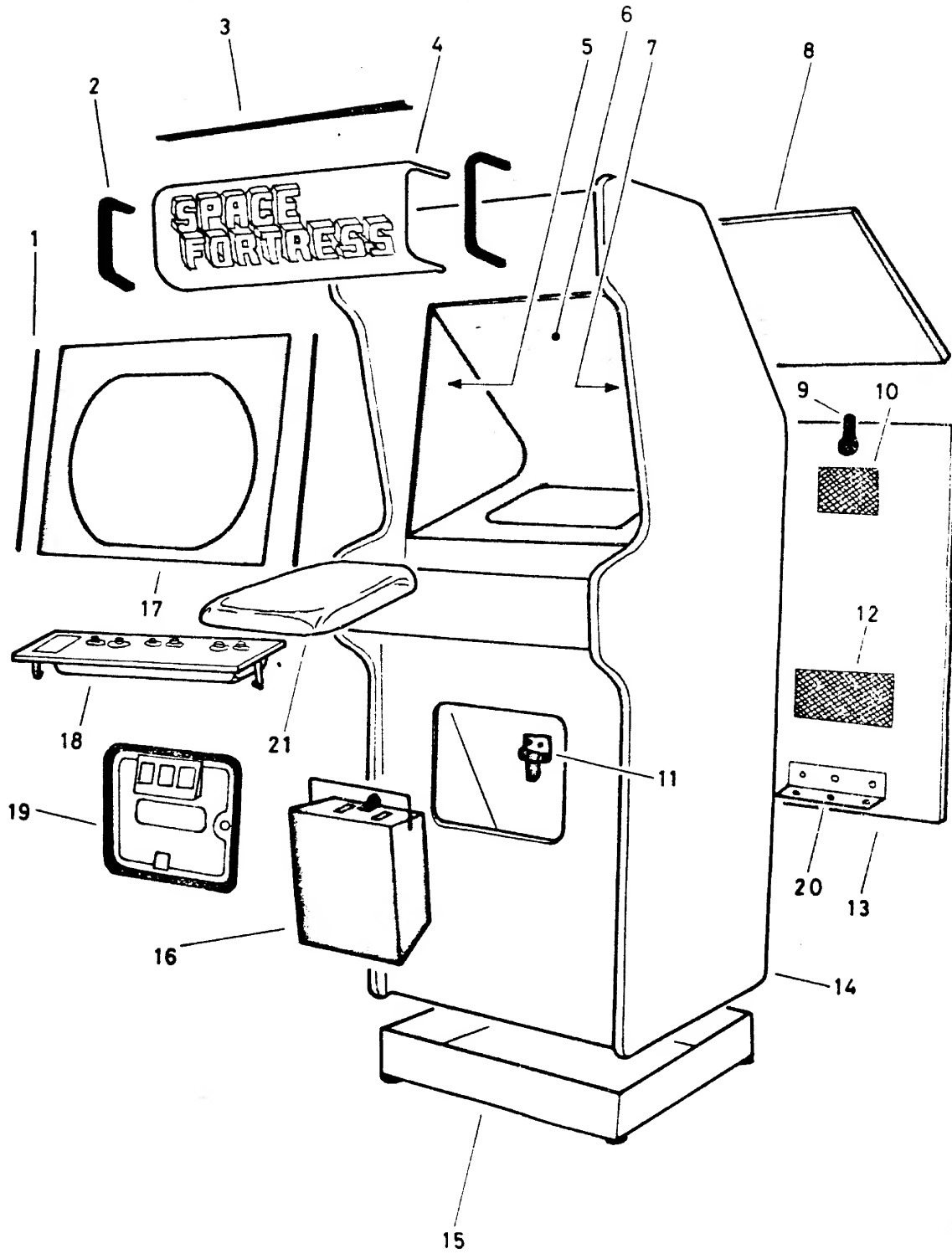
| 1 | 2 | 3 | 8 | |
|-----|-----|-----|-----|------------------|
| OFF | ON | OFF | OFF | 2 COINS - 1 PLAY |
| OFF | ON | OFF | ON | 1 COIN - 1 PLAY |
| OFF | OFF | ON | ON | 1 COIN - 2 PLAYS |
| OFF | ON | ON | ON | 1 COIN - 3 PLAYS |
| ON | OFF | OFF | ON | 1 COIN - 4 PLAYS |
| ON | ON | OFF | ON | 1 COIN - 5 PLAYS |
| ON | OFF | ON | ON | 1 COIN - 6 PLAYS |
| ON | ON | ON | ON | 1 COIN - 7 PLAYS |

COIN MECHANISM 2

| 4 | 5 | 6 | 7 | |
|-----|-----|-----|-----|------------------|
| OFF | ON | OFF | OFF | 2 COINS - 1 PLAY |
| OFF | ON | OFF | ON | 1 COIN - 1 PLAY |
| OFF | OFF | ON | ON | 1 COIN - 2 PLAYS |
| OFF | ON | ON | ON | 1 COIN - 3 PLAYS |
| ON | OFF | OFF | ON | 1 COIN - 4 PLAYS |
| ON | ON | OFF | ON | 1 COIN - 5 PLAYS |
| ON | OFF | ON | ON | 1 COIN - 6 PLAYS |
| ON | ON | ON | ON | 1 COIN - 7 PLAYS |

ATTENTION :

Do not use other possible combinations.

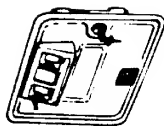


TAV. 1

| | | |
|----|---------|---|
| 1 | MV 009 | Profilato Cornice |
| 2 | MV 034 | Guarnizione Nera |
| 3 | A 7286 | Guarnizione in Alluminio Anodizzato |
| 4 | MRB 388 | Pannello ad "U" Serigrafato " Space Fortress" |
| 5 | MRB 402 | Scenario Verticale Sinistro |
| 6 | MRB 404 | Scenario |
| 7 | MRB 403 | Scenario Verticale Destro |
| 8 | FB 075 | Sportello Superiore |
| 9 | B 7091 | Serratura |
| 10 | A 7295 | Rettangolo Rete Stirata (130 x 250) |
| 11 | B 6616 | Squadretta Fissaggio Cassetta Monete |
| 12 | A 7294 | Rete Stirata (180 x 180) |
| 13 | FB 074 | Sportello Posteriore |
| 14 | MRB 378 | Mobile Serigrafato |
| 15 | FB 071 | Zoccolo |
| 16 | B 7154 | Cassatta Monete |
| 17 | MRB 359 | Vetro serig. " Space Fortress" |
| 18 | C 8146 | Pannello Comandi assemblato a pulsanti |
| 19 | C 8109 | Sportello per Gettoniere |
| 20 | A 7260 | Angolare Rinforzo Mobile |
| 21 | MRB 399 | Schermatura in Plexiglass per Cinescopio |

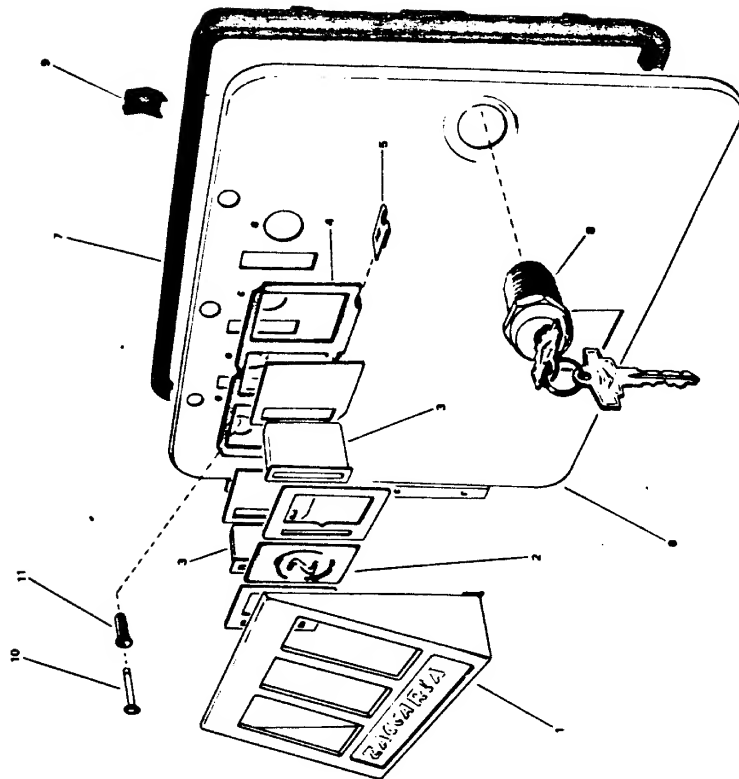
PIASTRINE SERIGRAFATE & Introduction Monets

| | | | | | | | |
|---------------------------------------|-------|---------------------------------------|----------|---------------------------------------|---------------------------------|---------------------------------------|---------------------------------|
| AUSTRIA | | AUSTRIA | | AUSTRIA | | AUSTRIA | |
| 20 CENTS PLAY | 5 OS | 10 OS | 5 FRS | 10 FRS | p. ser. B 5056 in. m. A 5007 | p. ser. B 5045 in. m. A 5008 | p. ser. B 5047 in. m. A 5007 |
| DANIMARCA & SVEZIA | | DANIMARCA & SVEZIA | | DANIMARCA & SVEZIA | | DANIMARCA & SVEZIA | |
| 1 Kr | 5 Kr | 10 Kr | 1 Kr | 2 Kr | p. ser. B 4074 in. m. A 5007 | p. ser. B 5065 in. m. A 4401 | p. ser. B 5066 in. m. A 5007 |
| GERMANIA | | GERMANIA | | GERMANIA | | GERMANIA | |
| 1 DM | 2 DM | 5 DM | 50 Yen | 100 Yen | p. ser. B 4059 in. m. A 5008 | p. ser. B 4060 in. m. A 5007 | p. ser. B 4041 in. m. A 5007 |
| GIAPPONE | | GIAPPONE | | GIAPPONE | | GIAPPONE | |
| ITALIA | | ITALIA | | ITALIA | | ITALIA | |
| 10 P | 50 P | 100 LIRE | 200 LIRE | 1 DIN | p. ser. B 4062 in. m. A 5007 | p. ser. B 4091 in. m. A 4401 | p. ser. B 5001 in. m. A 5007 |
| INGHILTERRA | | INGHILTERRA | | INGHILTERRA | | INGHILTERRA | |
| JUGOSLAVIA | | JUGOSLAVIA | | JUGOSLAVIA | | JUGOSLAVIA | |
| LIBANO | | LIBANO | | LIBANO | | LIBANO | |
| 25 PL | 50 PL | 1 G | 2 FORINT | 25¢ | p. ser. B 4062 in. m. A 5007 | p. ser. B 4091 in. m. A 4401 | p. ser. B 5001 in. m. A 5007 |
| OLANDA | | OLANDA | | OLANDA | | OLANDA | |
| UNGHERIA | | UNGHERIA | | UNGHERIA | | UNGHERIA | |
| USA & CANADA | | USA & CANADA | | USA & CANADA | | USA & CANADA | |
| FRANCIA & SVIZZERA | | FRANCIA & SVIZZERA | | FRANCIA & SVIZZERA | | FRANCIA & SVIZZERA | |
| BELGIO | | BELGIO | | BELGIO | | BELGIO | |
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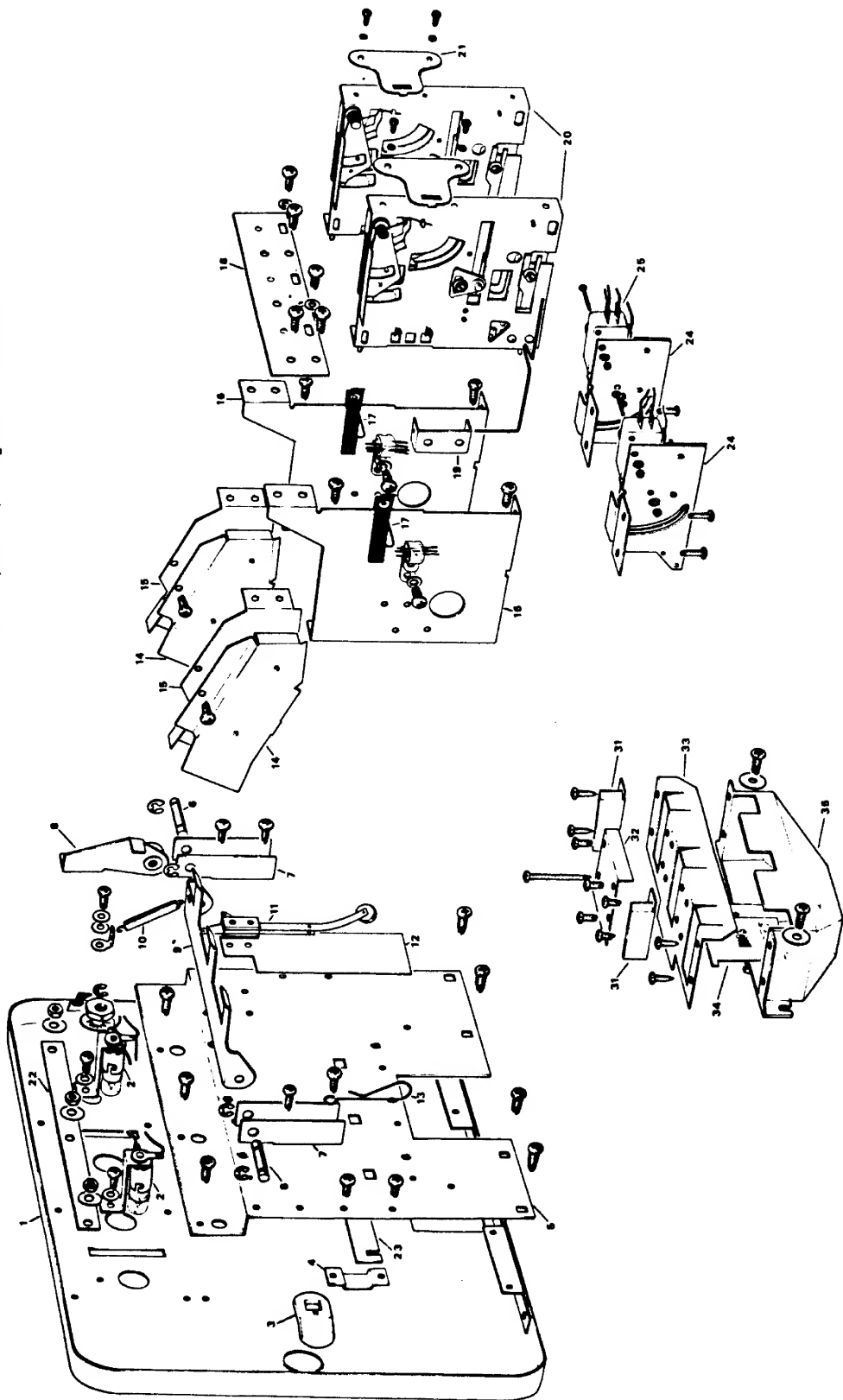


C 8109
SPORTELO PORTA
GETTONIERE
ASSEMBLATO

TAV. 3



C. 8109 Sportello porta gettoniere assemblato



TAV. 3

C 8109 SPORTELLI PER GETTONIERE ASSEMBLATO

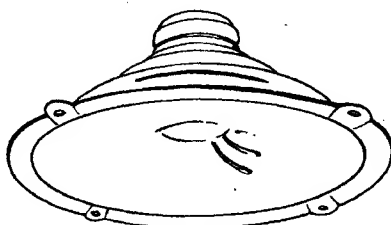
| | | |
|----|---------|-----------------------------------|
| 1 | ACB 116 | Frontalino Sportello con Cerniera |
| 2 | A 5009 | Piastrina con Marchio |
| 3 | A 6008 | Guida Moneta in Plastica |
| 4 | A 7005 | Componente Fissaggio Accessori |
| 5 | A 4383 | Piastrina Semigoppia |
| 6 | B 7194 | Sportello con Cerniera |
| 7 | A 7236 | Cornice in Alluminio Pressofuso |
| 8 | B 7153 | Serratura |
| 9 | A 4460 | Staffa Fissaggio Cornice |
| 10 | A 4031 | Pulsante Scarto Moneta |
| 11 | A 4032 | Componente per Pulsante |

TAV. 4

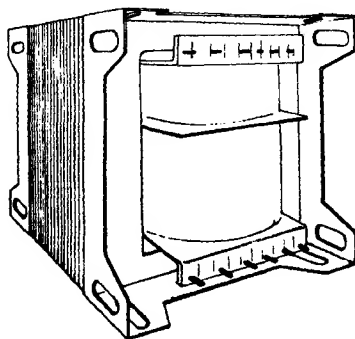
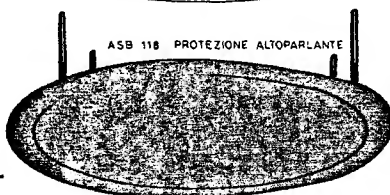
| | | |
|-------|--------|--|
| 1 | B 7194 | Sportello con Cerniera compl. di Accessori |
| 2 | B 5029 | Porta Lampada Alto Sportello |
| 3 | A 4328 | Leva per Serratura Sportello Anteriore |
| 4 | A 5002 | Fermo Barra Arresto Moneta |
| 5 | A 7002 | Piastra Supporto Gettoniera |
| 6 | A 4005 | Fermo per Cavallotto Sportello |
| 7 | A 6001 | Cavallotto Sportello |
| 8 | B 6001 | Leva con Boccola |
| 9 | A 6002 | Leva di Scarto Gettoniera |
| 10 | A 5201 | Molla richiamo Leva di Scarto |
| 11 | B 9015 | Pacco Lamellare Tilt |
| 12 | A 5205 | Cartoncino Isolatore Sportello |
| 13 | A 5021 | Ferretto Porta Chiave Sportello |
| 14 | A 7009 | Scorrimoneta Maschio |
| 15 | A 7008 | Scorrimoneta Femmina |
| 14+15 | B 6076 | Scorrimoneta Assemblato |
| 16 | B 7006 | Supporto Gettoniera |
| 17 | A 5252 | Forcellina Fissaggio Gettoniera |
| 18 | A 5014 | Piastrina Accoppiamento Supp. Gettoniera |
| 19 | A 5015 | Componente per Asta Arresto Moneta |
| 20 | B 7083 | Gettoniera L. 50 |

| | | |
|----|--------|-----------------------------------|
| 20 | B 7084 | Gettoniera I. 100 |
| " | B 7175 | " I. 200 |
| " | B 7092 | " 25 ø |
| " | B 7096 | " 5 F |
| " | B 7097 | " 10 F |
| " | B 7098 | " 5 P |
| " | B 7099 | " 10 P |
| " | B 7147 | " 50 P |
| " | B 7111 | " 0,50 pfg |
| " | B 7112 | " 1 IM |
| " | B 7113 | " 2 IM |
| " | B 7114 | " 5 IM |
| " | B 7128 | " 1 FS |
| " | B 7129 | " 2 FS |
| " | B 7148 | " 10 Fr Belgi |
| " | B 7233 | " 5 Dinari |
| " | B 7234 | " 10 Dinari |
| 21 | A 5114 | Piastrina Fissaggio Gettoniera |
| 22 | A 5006 | Asta per Frontalino |
| 23 | A 5001 | Barra Arresto Moneta |
| 24 | B 6109 | Piastra Porta Micro |
| 25 | B 5053 | Micro Nero |
| " | B 5054 | Micro Rosso |
| " | B 5055 | Micro Bianco |
| 31 | A 5012 | Squad. a 2 fori |
| 32 | A 5010 | Squad. a 4 fori |
| 33 | A 6009 | Copertura per Raccoglitore Monete |
| 34 | A 5011 | Cancelletto |
| 35 | AS1028 | Raccoglitore in Plastica |

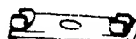
CE 2018 ALTOPARLANTE



ASB 118 PROTEZIONE ALTOPARLANTE



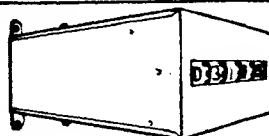
C 8128 TRASFORMATORE 2 C 1012



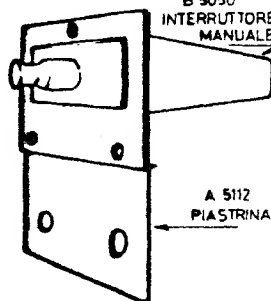
B 7055 PORTAFUSIBILE



C 8076 FILTRO RETE 1 AMP.

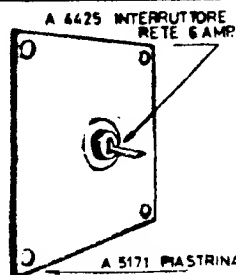


B 6110 CONTATORE 6 V d.C.



B 5050
INTERRUTTORE
MANUALE

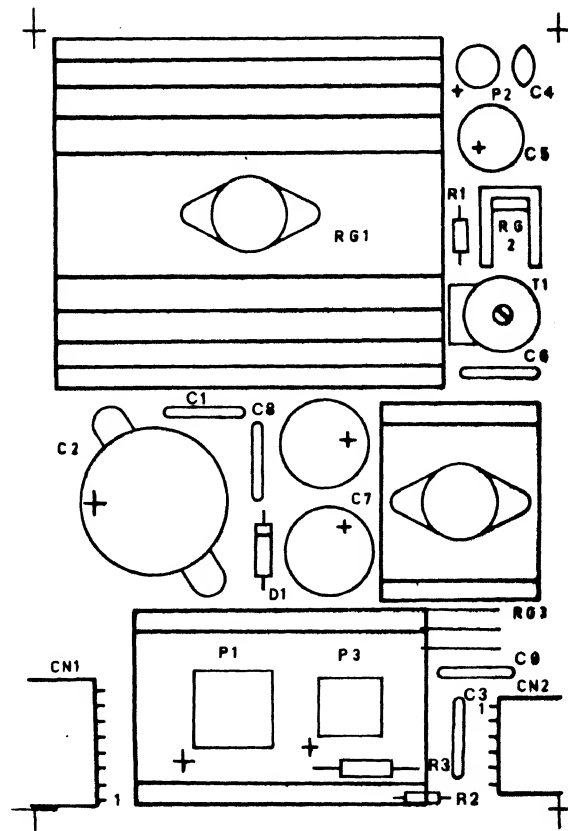
A 5112
PIASTRINA



A 4425 INTERRUTTORE
RETE 6 AMP.

A 5171 PIASTRINA

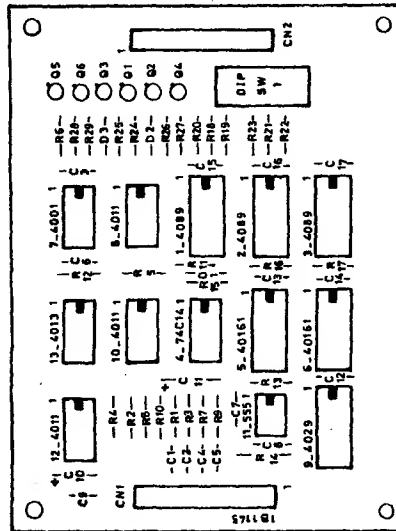
CEC 075 POWER BOARD P.C. 1B1126

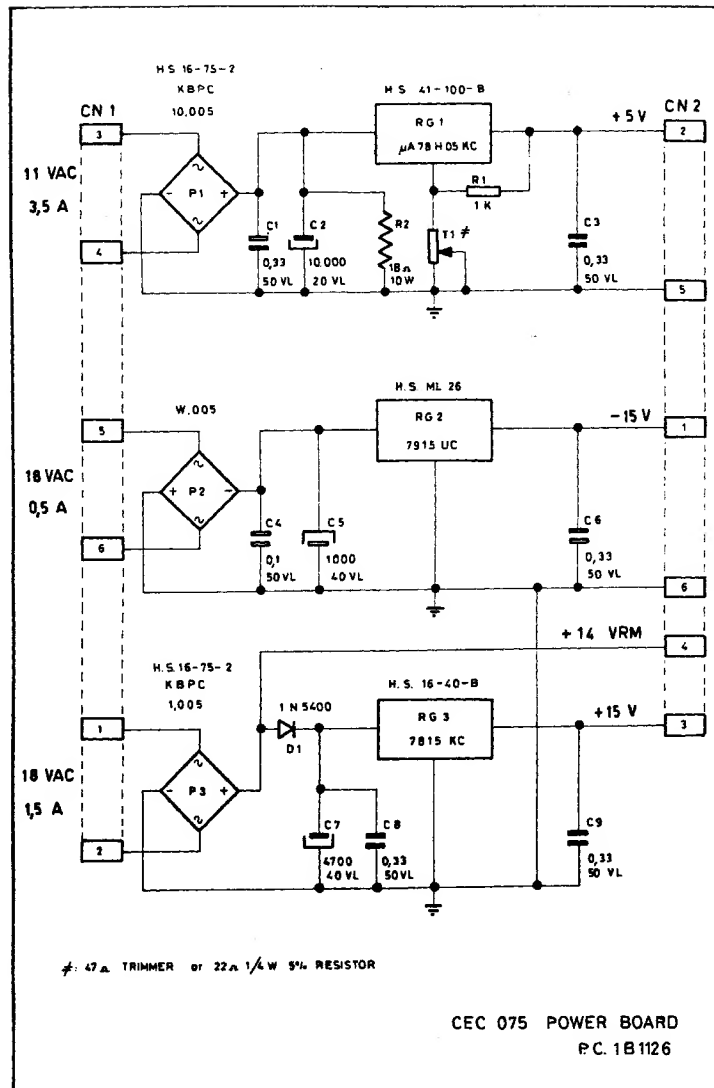


PC 1B 1126

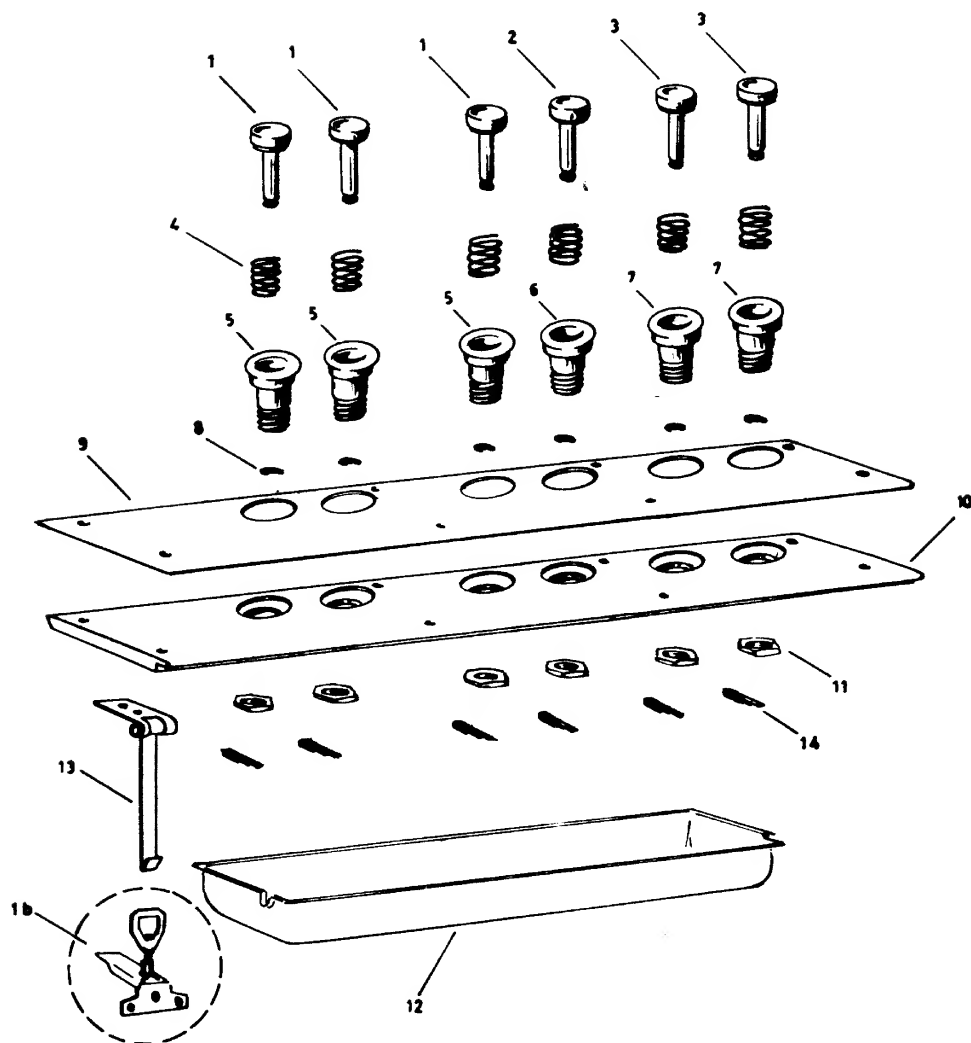
Component list

[illegible]





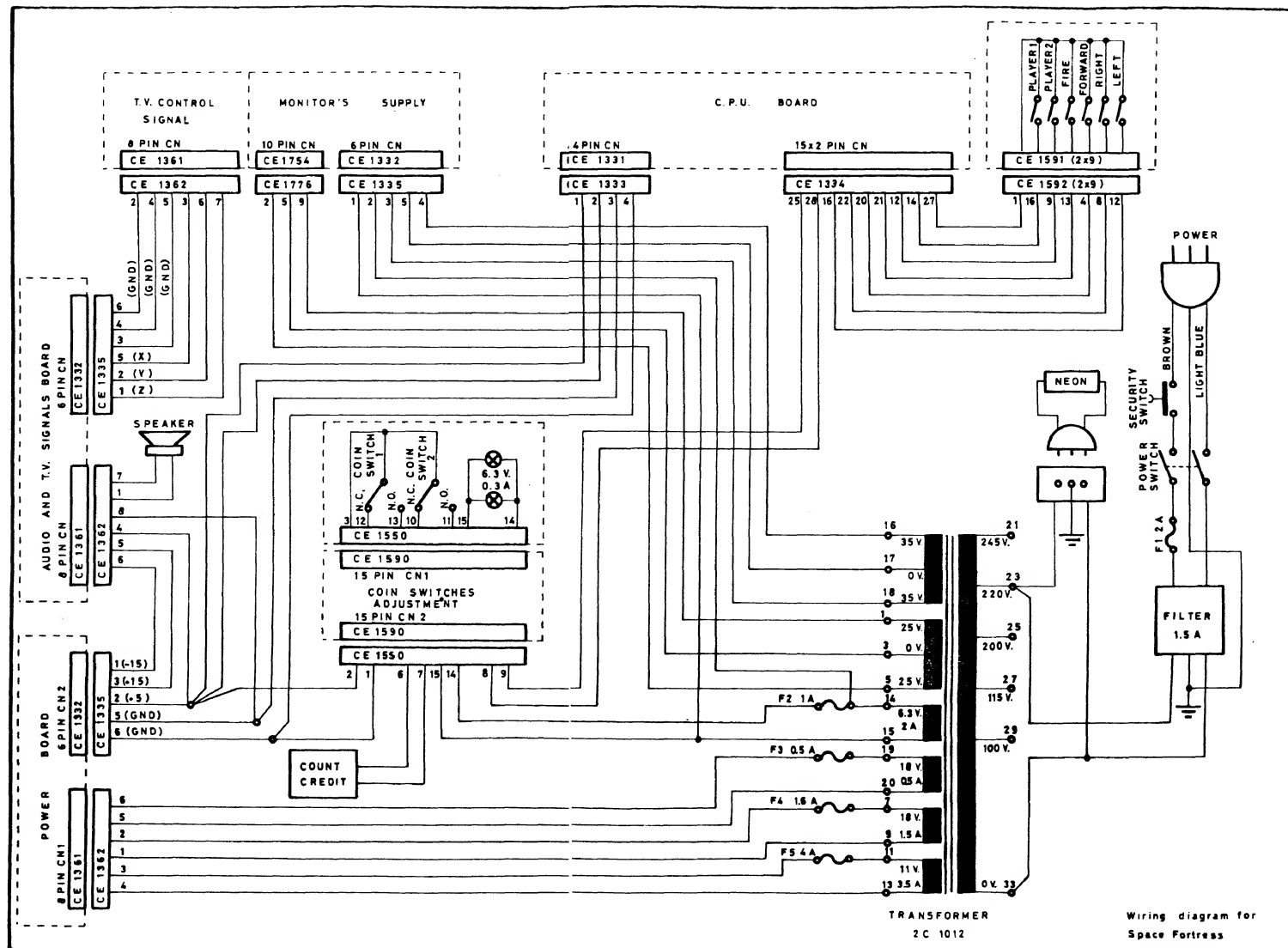
C 8146 Pannello comandi a 6 pulsanti

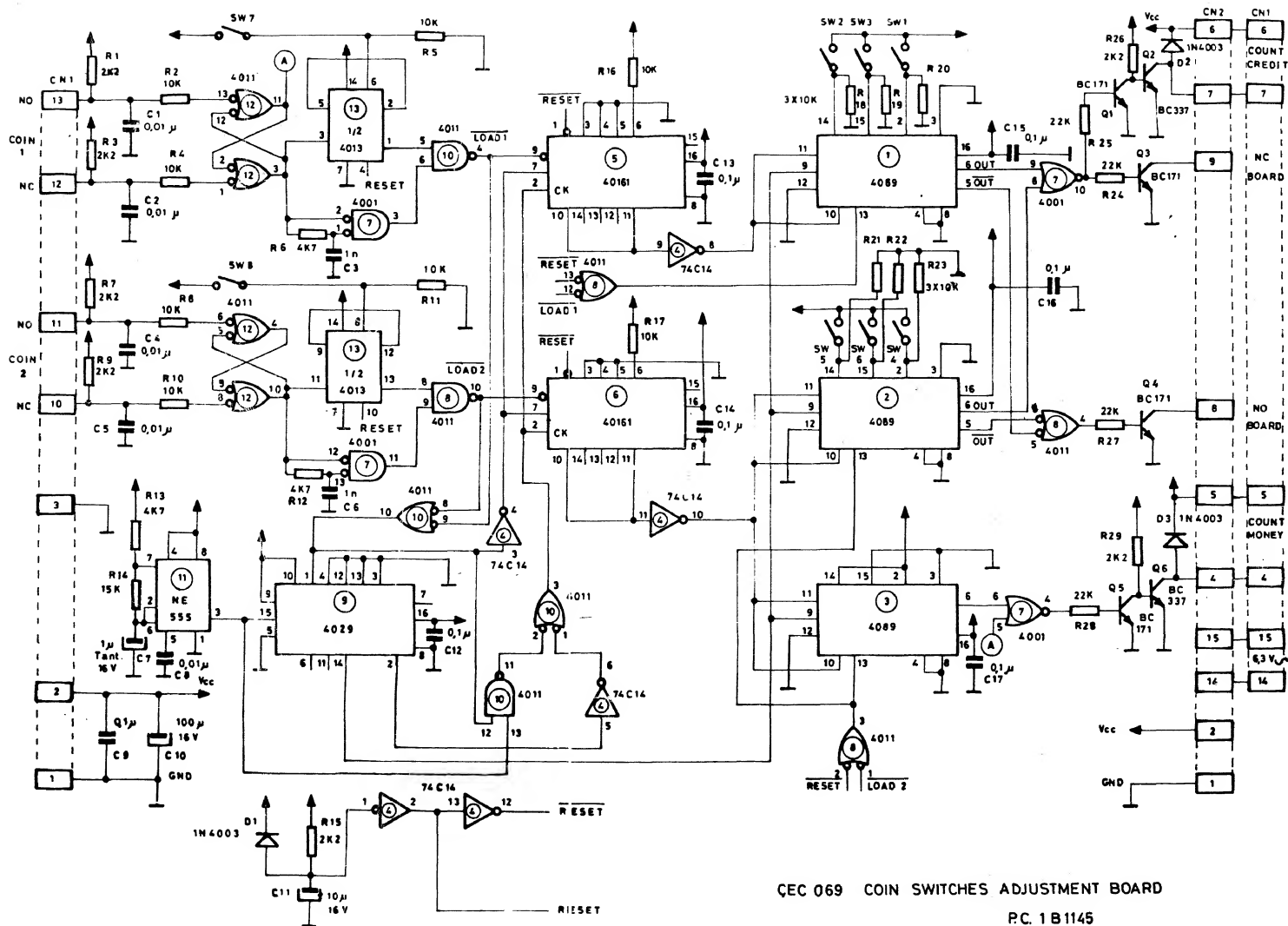


TAV. 2

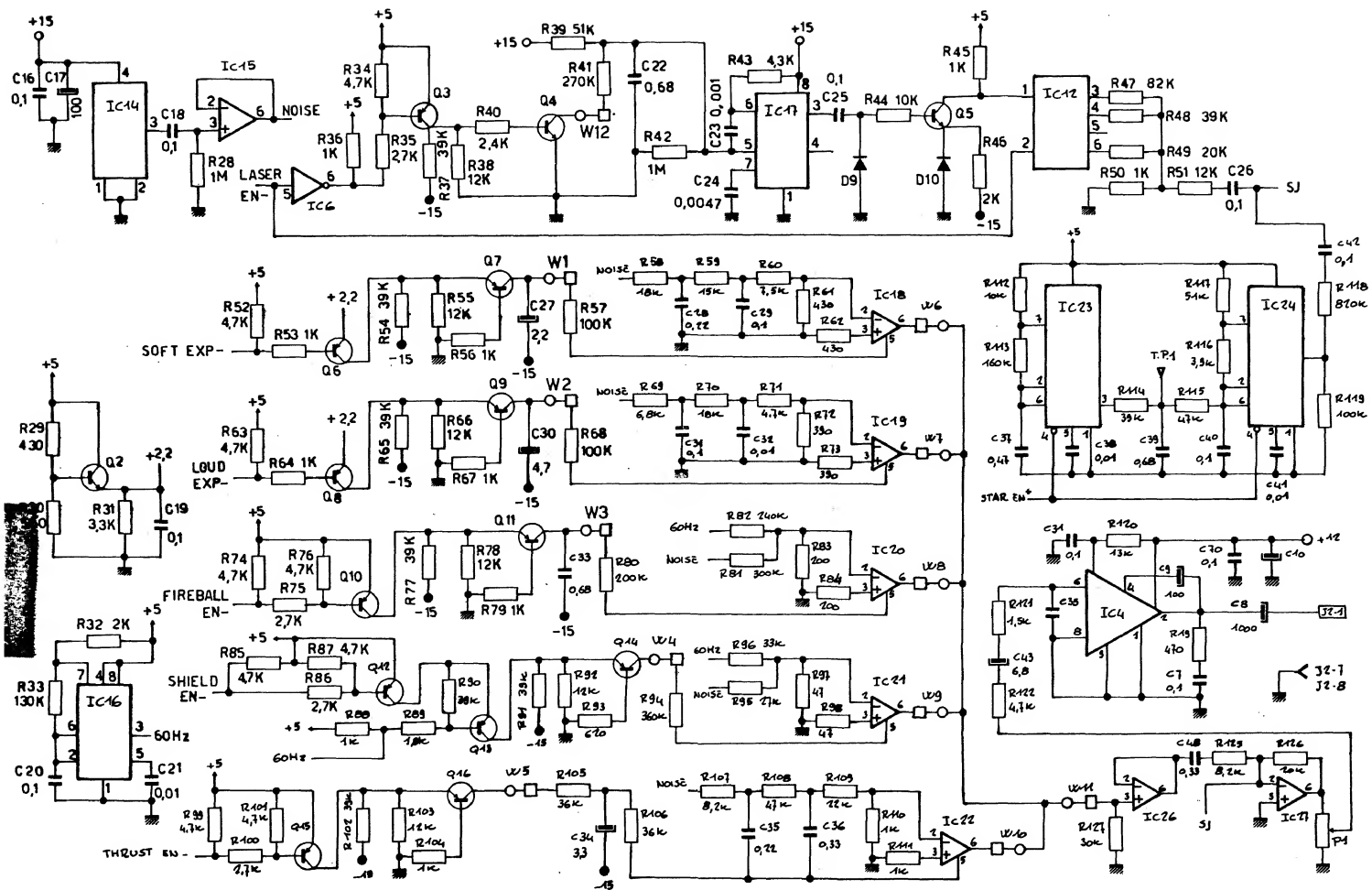
C 8146 PANNELLO COMANDI A 6 PULSANTI

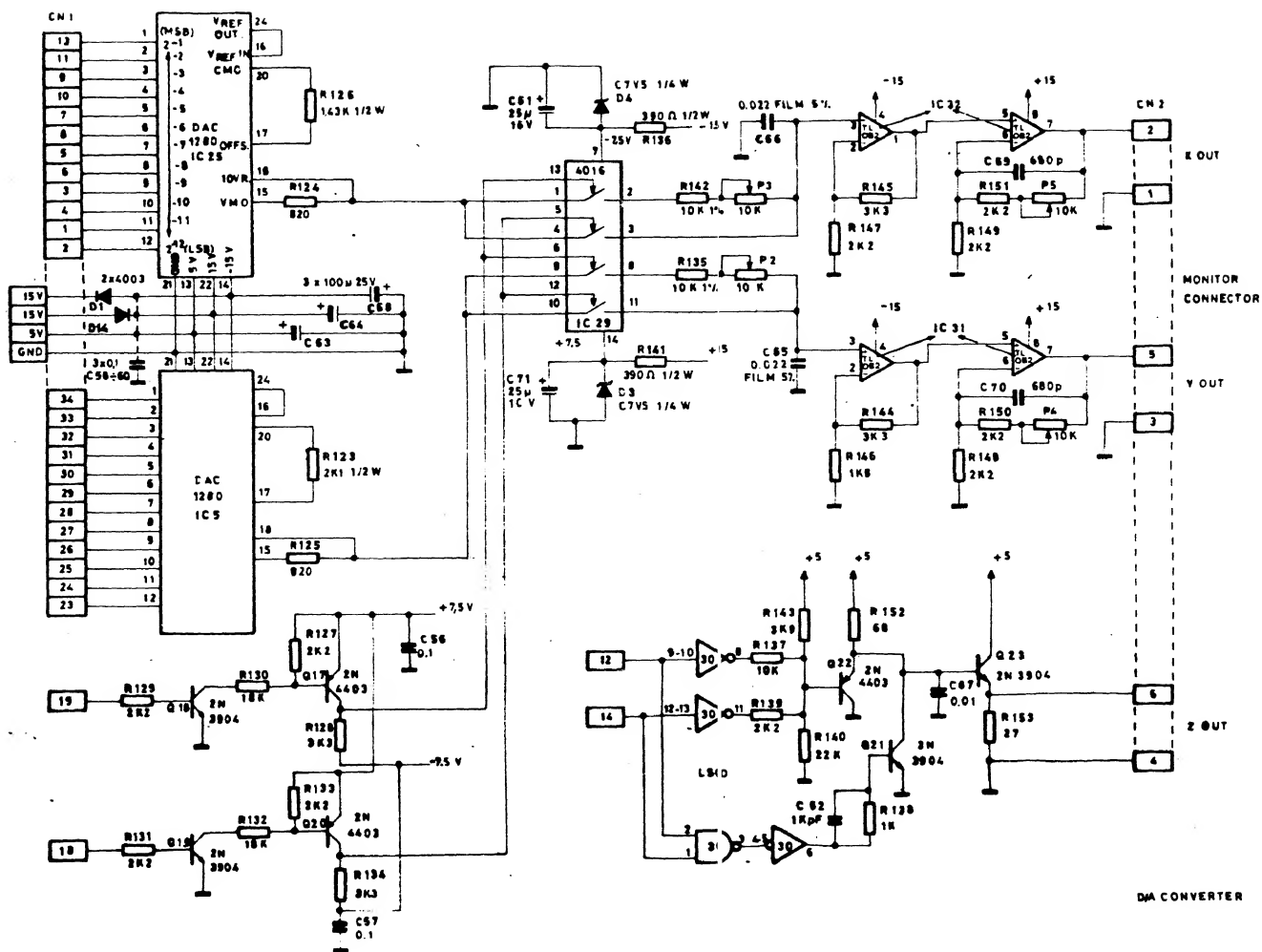
| | | |
|----|---------|---|
| 1 | B 6113 | Pulsante Verde |
| 2 | B 6130 | Pulsante Rosso |
| 3 | B 6114 | Pulsante Bianco |
| 4 | A 4272 | Molla Richiamo Pulsante |
| 5 | A 5213 | Corpo Pulsante Verde |
| 6 | A 5225 | Corpo Pulsante Rosso |
| 7 | A 5211 | Corpo Pulsante Bianco |
| 8 | A 4202 | Anello Din mm. 6 |
| 9 | MRB 384 | Mascherina Comando serigrafata |
| 10 | FB 085 | Tavoletta in Legno |
| 11 | A 5214 | Dado Ferro Zinc. 16 MA Fiss. Corpo Pulsante |
| 12 | A 7194 | Scatola Protezione Pacchi Lamellari |
| 13 | B 6118 | Cerniera con Tirante |
| 14 | B 9021 | Pacco Lamellare |
| 1b | B 6115 | Bloccaggio a Leva Regolabile |





ÇEC 069 COIN SWITCHES ADJUSTMENT BOARD
P.C. 1B1145





MONITOR X-Y

